

Accelerometer Augmented Leveling Device

Abstract

A leveling system for a missile system includes a platform defining an xz-plane and a yz-plane. A first dual bridge sensor is coupled to the platform at an angle such that the first dual bridge sensor is sensitive to movement of the first dual bridge sensor in the xy-plane. The first dual bridge sensor includes a first flexure plate generating a first dual bridge sensor signal in response to movement of the first flexure plate. A second dual bridge sensor is coupled to the platform at an angle such that the second dual bridge sensor is sensitive to movement of the second dual bridge sensor in the xy-plane. The second dual bridge sensor includes a second flexure plate generating a second dual bridge sensor signal in response to movement of the second flexure plate. Third and fourth dual bridge sensors are arranged similarly to the first and second dual bridge sensors but with respect to the yz-plane. A processor drives the sensors with a precision sine wave and rotates the platform in response to the sensor signals.